03/04/14 Agenda

- Answer Keys

- Warm Up

- Retake Information
    - Remediation Packet is on my web site
    - It's due by March 5th (tomorrow)
    - Complete it, Reflection Sheet, & Missing Homework
    - You have 1 week after submitting it to take your retest

- Section 7.1 day 1 - Zero/Negative Exponents

- Homework
    - Worksheet 7.1 - Negative & Zero Exponents

Warm Up

Put your name on a slip of paper.

Simplify:

$$\frac{2x^{14}y^{4}}{6x^{5}} \qquad \frac{a^{13}c^{4}}{a^{5}b^{3}c^{2}}$$

$\frac{2}{6}x^{9}y^{4}$

$\frac{1}{3}x^{9}y^{4}$

$a^{8}b^{3}c^{2}$

$\frac{a^{8}c^{2}}{b^{3}}$

$\frac{x^{5}}{x^{3}} = \frac{x \cdot x \cdot x \cdot x \cdot x}{x \cdot x \cdot x} = x^{2}$

$x^{5-3} = x^{2}$

$\left(\frac{a}{b}\right)^{3} = \frac{a^{3}}{b^{3}}$

#13 $\dfrac{(2x^4y^2)^3}{2yx^3} \rightarrow \dfrac{2^3x^{12}y^6}{2yx^3}$

$2^{3-1}x^{12-3}y^{6-1}$

$2^2x^9y^5 = 4x^9y^5$

Section 7.1 day 1 - Zero/Negative Exponents

Target 7D March 4, 2014

Goal: Be able to apply properties of zero and negative exponents.

Review:

$$a^m a^n = a^{m+n} \qquad \frac{a^m}{a^n} = a^{m-n}$$

$$\left(a^m\right)^n = a^{mn} \qquad \left(\frac{a}{b}\right)^m = \frac{a^m}{b^m}$$

$$(ab)^m = a^m b^m$$

$a^0 = 1$

Try this one and expand it...

$$\frac{x^3}{x^3} = \frac{x \cdot x \cdot x}{x \cdot x \cdot x} = \frac{1}{1} = 1 \qquad x^{3-3} = x^0$$

$$\frac{2y^5}{2y^5} = \frac{2 \cdot y \cdot y \cdot y \cdot y \cdot y}{2 \cdot y \cdot y \cdot y \cdot y \cdot y} = \frac{1}{1} = 1 \qquad 1y^{5-5} = y^0$$

$x^0 = 1$

So anything to the zero power is ONE.

Examples:

$a^0 = 1$ $\qquad 1{,}908{,}898^0 = 1$

$(3xy)^0$ $\qquad (125a^{102}b^{385})^0 = 1$

$3^0 x^0 y^0 = 1$

Section 7.1 day 1 - Zero/Negative Exponents

Target 7D March 4, 2014

Expand these...

$\frac{x^3}{x^5} = \frac{x \cdot x \cdot x \cdot 1}{x \cdot x \cdot x \cdot x \cdot x} = \frac{1}{x^2}$ or $x^{3-5} = x^{-2}$

$a^{-n} = \frac{1}{a^n}$

$\frac{c^3 d^5}{c^6 d^2} = \frac{c \cdot c \cdot c \cdot d \cdot d \cdot d \cdot d \cdot d}{c \cdot c \cdot c \cdot c \cdot c \cdot c \cdot d \cdot d} = \frac{d^3}{c^3}$

$\frac{1}{a^{-n}} = a^n$

$c^{3-6} d^{5-2} = c^{-3} d^3$

So we have more than one way to look at these.

No one likes to work with negative numbers (they're soooo negative), so we have to make sure they are positive!

The only way to make a negative exponent positive is to MOVE IT! Also, we only move what is negative!

$5^{-2} = \frac{1}{5^2} = \frac{1}{25}$

$2x^{-4}$ $\quad 2 \cdot x^{-4} = \frac{2}{x^4}$

$\frac{1}{x^{-3}} = x^3$

$2x^{-2}y^{-7}$ $\quad \frac{2}{x^2 y^7}$

$(5a)^{-2}$ $\quad \frac{1}{(5a)^2} = \frac{1}{5^2 a^2} = \frac{1}{25a^2}$

$\frac{1}{4d^{-5}}$ $\quad \frac{d^5}{4}$

$4x^{-3}y^8z^{-9}$ $\quad \frac{4y^8}{x^3 z^9}$

Challenge: $\left(\frac{2x^3y}{3x}\right) \cdot \left(\frac{9xy^2}{y^4}\right)$

$\frac{2x^2y}{3} \cdot \frac{9x}{y^2} = \frac{18x^3y}{3y^2} = \frac{6x^3}{y^2}$

$\frac{x^3}{x^5} = x^{3-5} = x^{-2} = \frac{1}{x^2}$